





## Editorial—Digital Creativity for Developing Digital Maturity Future Skills

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In an era characterised by rapid technological advancements, the world is undergoing profound transformations (Teichert R., 2019). Klaus Schwab (2016) refers to these transformations not only as the Fourth Industrial Revolution but also as a sweeping “transformation of humankind”. Indeed, the pervasive influence of digital technologies has permeated every aspect of people's lives, from the way we engage in sports and consume food to how we do business and interact with each other. The advent of new digital technologies carries the power to reshape behaviours, reinvent social relationships, and redefine the very fabric of humanity. These digital technologies have become integral to our human existence, yet a comprehensive understanding of their impact is missing and strategic guidance amidst this ongoing digital transformation is needed. Society as a whole should, indeed, adapt proactively to new digital technologies and learn how to take full advantage of their application. Schwab affirms that, in human history, there has never been “a time of greater promise or potential peril” (Schwab, p. 8, 2016) which implies that, in order to strategically drive change and leverage the digital transformation, it becomes paramount for change-makers and creators to acquire a new set of skills to master creatively the disruptive and innovative potential of new technologies (Schwab, 2016). Also, emerging technologies have far-reaching effects and implications, often exceeding the initial expectations. “We tend to overestimate the effect of a technology in the short run and underestimate the effect in the long run” (Amara, 1980). The consequences of their application in different fields are still hardly foreseeable and thus manageable. Since the future is neither predictable nor predetermined (Voros, 2001), it is quite hard to imagine what is yet to come. However, being able to anticipate how technologies might evolve as well as to map their potential implications represents a fundamental asset for both organizations and individuals and an important step to reach Digital Maturity. To achieve these transformations, new strategies should be implemented, some of which include the need to rethink contemporary educational models.

The fast-paced evolution of the digital landscape requires preparing future young innovators, particularly designers, engineers and entrepreneurs, with new skills and competencies to navigate creatively and responsibly the ongoing digital transformation. Organisations such as small and medium enterprises, and business incubators must welcome and invest in digital talents capable of leading them towards digital maturity. In this context the overarching objective of the Erasmus+ funded project *Digital Creativity for Developing Digital Maturity Future Skills—DC4DM* ([www.dc4dm.eu](http://www.dc4dm.eu)), has been to implement a human-centred educational model to empower individuals with Digital Creative Abilities (DCAs) and disseminate it within a European network of HEIs, SMEs and startups. The DC4DM project envisions the dissemination of a new culture on digital creativity with the purpose of fostering responsible use of new digital technologies and propelling organisations towards the design of more sustainable and just futures.

Digital creativity can be defined as the human ability to create innovative and original digital outcomes leveraging the opportunities presented by digital technologies in a strategic and responsible way (Bruno, 2020). Digital creativity is a multifaceted phenomenon that encompasses the cognitive, emotional, physical, and social dimensions of the human experience. This means that the essential skills, knowledge, and values which are required to activate and foster a creative process must be constantly updated and evolve at the speed of digital advancements too. To guarantee a thriving transition towards digital maturity, the next generation of innovators should be equipped with a mix of “hard” skills, such as technology design and data analysis, and “human-centric”



skills, including cooperation, empathy, social awareness, and global citizenship, to empower them to shape a future characterised by inclusivity and equality (WEF, 2020). Higher Education Institutions (HEIs)—particularly those offering engineering, design and entrepreneurship curricula—have then the task of updating and re-thinking their traditional educational models acknowledging that digital technologies are becoming our next invisible and ubiquitous nature.

Adapting to digital transformation is not merely about acquiring new technological tools, but also about fostering a mindset that values creativity, collaboration, and ethical responsibility. In this context, higher education institutions play a crucial role in preparing the future innovators who will be at the forefront of these changes. By updating curricula and incorporating human-centred teaching methods, universities can ensure that their students not only keep pace with the rapid technological advancements but also lead the way toward a more inclusive and sustainable future. This alignment with the goal of the *Journal of Entrepreneurial Researchers (JER)* is crucial, as highlighted in the JER's founding editorial, which emphasizes the importance of transforming conventional universities into dynamic centres of research, innovation, and entrepreneurship. According to Leite (2023), true academic excellence arises from strategic governance, a high concentration of talent, and abundant resources, which together create a conducive environment for world-class learning and advanced research. With this vision, the JER seeks to promote a transnational network of advanced research with high social impact, contributing to more sustainable and equitable development. The Erasmus+ funded project, Digital Creativity for Developing Digital Maturity Future Skills (DC4DM), exemplifies this approach by offering a human-centred educational model that empowers individuals with creative digital skills. The DC4DM, demonstrates how education can be a transformative force in times of rapid technological evolution, inspiring Industry 5.0.

Through this *Journal of Entrepreneurial Researchers* issue we have invited the wide and multidisciplinary academic community to explore the following critical questions: *how is digital transformation not only altering mindsets, behaviours, and social attitudes but also revolutionising the processes of creation and innovation? How can small and medium scale enterprises keep up with the fast pace of digital technologies developments? How are work requirements and skill sets changing? How is higher education aligning with the needs and opportunities of the digital era? How can achieving digital maturity be an opportunity for sustainable transformation?*

The six articles included in this issue develop some of the proposed themes from different angles and research fields, such as:

- Higher education for the Fourth Industrial Revolution: preparing creatives and entrepreneurs to guide organisations towards digital maturity.
- Digital transformation and innovation for small and medium enterprises and organisations
- Tech-foresight and design futures methods and applications for digital transformation.
- Creativity and creative skills in the era of digital transformation.
- Ethical dilemmas while achieving digital maturity.
- Collaboration and communication strategies to envision sustainable and just future scenarios.

Articles like *“Steering digital maturity: a design-based educational model for empowering digital creativity and future skills”* (Bruno C., Canina M.R., Monestier E.) and *“Preparing humane ML experts for a better future. Experiments with design and engineering students”* (Sciannammé, M.) highlight the need of educating future digital talents with new methods and tools which can prepare them to respond to the challenges of a world in constant transformation. Students from different disciplines should not just understand the technical aspects of emerging digital technologies but develop the skills and abilities for collaboration and cross-pollination. A strong sense of ethical responsibility should also guide future professionals when designing new digital applications and systems as suggested through the contribution *“Ethical navigation in the development of healthcare digital applications: a case study of the DC4DM Learning Lab on Madeira Island”* (Ferreira L., Vezzani V., Cerretti C.). Articles like *“Agile future creation methodology. Innovation method for startups to build future-proof solutions”* (Rana R.) and *“Psyment: advancing digital transformation in psychological assessments and diagnosis for healthcare facilities and organizations”* (Rodrigues B., Freitas E., Romão A., Ferreira L.) offer ideas for optimising



workflow and inspire innovation within small and medium organisations where there is either a genuine need for digital transformation or thirst for digital creativity. Finally, “Towards an analytical framework for AI-powered creative support systems in interactive digital narratives” (Serbanescu A., Nack F.) brings to attention the need of understanding better new emerging technologies, such as AI systems, to not just use them at their best potential, but especially to enhance collaboration between different types of expertise who would surely unleash great levels of creativity, or better, digital creativity!

The DC4DM project officially concluded in August 2023, but many were the questions the researchers were left with. This issue includes six contributions from academics from the areas of design, engineering and entrepreneurial studies, but it aims to inspire further interdisciplinary conversations which may lead to new creative projects, research activities or simply collaborations in favour of the vast current debate on digital creativity and digital maturity.

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